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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,666	12/21/2001	Sven Mattisson	026125-081	3689

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EXAMINER	
CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
2685	6

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/036,666	**Applicant(s)** MATTISSON, SVEN	
	Examiner Charles Chow	**Art Unit** 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2; 12/21/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Specification

Content of Specification

1. (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

The claiming of a priority benefit should be stated at the beginning of the specification, for the claiming of the foreign priority benefit from application, Sweden 0004,889-2 12/28/2000. A correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 13, 15-19, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myllyla (US 6,542,436 B1) in view of Maxwell (US 5,872,743).

Regarding **claim 1**, Myllyla teaches a proximity detector (abstract, Fig. 1-2) for use in a mobile phone (mp in Fig. 2, abstract) having at least a microphone (2, Fig. 1) and a loudspeaker (1, Fig. 1) operatively connected to signal processing means (3, Fig. 1), the proximity detector (proximity detecting system, Fig. 1, col. 3, line 57 to col. 4, line 9) comprising data processing (3, Fig. 1, the processing of altered measurement signal due to user's head, the 8 KHz, 40 KHz sampling, adaptive filtering LMS, impulse response estimation in col. 4, lines 27-62, Fig. 3; decimator 16, anticomb filtering 18, scaling 24A-

24B, difference 26 in Fig. 4-5) and control means including means for controlling the signal processing means (col. 3, line 67 to col. 4, line 4, a signal processing unit 3 providing the control means including to generate the measurement signal A and to receive the response B fed to the processing 3, for calculating the proximity detection result) for activating the loudspeaker to reproduce an acoustic control signal (generating measurement signal to drive an acoustic transducer in col. 2, line 66 to col. 3, line 8), the signal level control means for controlling the signal processing means for varying the signal level of an audible signal reproduced by the loudspeaker proportional to the determined distance (the step of determining is used to set a volume of a signal driving a speaker, col. 8, lines 18-21; col. 8, lines 60-63).

Myllyla fails to teach the correlating a control signal received directly by the microphones and a control signal reflected from a user of the telephone and then received by them microphone for determining a distance between the telephone and the user. However, Maxwell teaches the correlating a control signal received directly by the microphones (microphone 30, step 110, Fig. 3, receiving original sound as emitted, col. 4, lines 10-19) and a control signal reflected from a user of the telephone (step 125, receive reflections of sound, col. 4, lines 29-48) and then received by the microphone (30) for determining a distance between the computer and the user (to locating the user of a computer system and adjusting the sound from speaker, abstract). Maxwell teaches the determining of the user's location distance, such as, with respect to a user's computer device, by utilizing the software 24 (col. 2, lines 9-32, which can be used for a mobile telephone) by comparing the original emitted

sound with the reflected sound signal, with efficiency (reducing complexity in col. 1, lines 28 -50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, and to include Maxwell's determining of user's location distance by comparing the original emitted sound with the reflected sound signal with efficiency, such that the mobile telephone could determine user's location with less complexity.

Regarding **claim 15**, Maxwell taught in claim 13 above the proximity detector having the correlating means include means for comparing the signal level of the directly received control signal with the signal level (amplitude in col. 1, lines 45-49) of the reflected control signal for determining the distance of a user (microphone 30 and step 110 for receiving original sound as emitted in col. 4, lines 10-19, the step 125 for receive reflections of sound, col. 4, lines 29-48, to locate the distance of a user of a computer system and adjusting the sound from speaker in abstract), in combination with Myllyla's distance determination between mobile telephone and the user.

Regarding **claim 16**, Maxwell teaches the correlating means include means for comparing a signal delay of the directly received control signal with a signal delay of the reflected control signal for determining the distance (comparing the time delay characteristic of the reflected sound 42 with originally emitted 40, col.5, lines 27-30; elapse time in col. 6, lines 9-18).

Regarding **claim 17**, Myllyla taught the control signal is an ultrasonic signal (col. 2, lines 23-30).

Regarding **claim 18**, Myllyla taught the control signal is an audible signal (sound signal in the range 20 Hz to about 20 KHz, col. 2, lines 23-30).

Regarding **claim 19**, Myllyla taught the control signal is a ring or voice signal (speech in col. 2, lines 31-33; signal in the range 20 Hz to about 20 KHz, col. 2, lines 23-30).

Regarding **claim 21**, Myllyla teaches a mobile telephone apparatus (Fig. 2), a microphone (2) a loudspeaker (1), signal processing means operatively coupled to the loudspeaker (Fig. 1 3 is coupling to 1) and a proximity detector (proximity detecting system, Fig. 1, col. 3, line 57 to col. 4, line 9) including data processing (3, Fig. 1, the processing of altered measurement signal due to user's head, the 8 KHz, 40 KHz sampling, adaptive filtering LMS, impulse response estimation in col. 4, lines 27-62, Fig. 3; decimator 16, anticomb filtering 18, scaling 24A-24B, difference 26 in Fig. 4-5) and control means including means for controlling the signal processing means (col. 3, line 67 to col. 4, line 4, a signal processing unit 3 providing the control means including to generate the measurement signal A and to receive the response B fed to the processing 3, for calculating the proximity detection result) for activating the loudspeaker to reproduce an acoustic control signal (generating measurement signal to drive an acoustic transducer in col. 2, line 66 to col. 3, line 8), the signal level control means for controlling the signal processing means for varying the signal level of an audible signal reproduced by the loudspeaker proportionally to the determined distance (the step of determining is used to set a volume of a signal driving a speaker, based on the determined distance, col. 8, lines 18-21; col. 8, lines 60-63).

Myllyla fails to teach the correlating a control signal received directly by the microphones and a control signal reflected from a user of the telephone and then received by them microphone for determining a distance between the telephone and the user. However, Maxwell teaches the correlating a control signal received directly by the microphones

(microphone 30, step 110, Fig. 3, receiving original sound as emitted, col. 4, lines 10-19) and a control signal reflected from a user of the telephone (step 125, receive reflections of sound, col. 4, lines 29-48) and then received by the microphone (30) for determining a distance between the computer and the user (to locating the user of a computer system and adjusting the sound from speaker, abstract). Maxwell teaches the determining of the user's location distance, such as, with respect to a user's computer device, by utilizing the software 24 (col. 2, lines 9-32, which can be used for a mobile telephone) by comparing the original emitted sound with the reflected sound signal, with efficiency (reducing complexity in col. 1, lines 28 -50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, and to include Maxwell's determining of user's location distance by comparing the original emitted sound with the reflected sound signal with efficiency, such that the mobile telephone could determine user's location with less complexity.

Regarding **claim 22**, Myllyla teaches a method for sound-based proximity detection in a mobile telephone (abstract, Fig. 1-2, mp in Fig. 2, abstract) having at least a microphone (2, Fig. 1) and a loudspeaker (1, Fig. 1) operatively connected to signal processing means (3, Fig. 1), the method comprising the steps of controlling the signal-processing means to activate the loudspeaker to reproduce an acoustic control signal (col. 2, line 66 to col. 3, line 8), generating a data control signal for the signal processing means to activate the loudspeaker for reproducing audible signals (generating measurement signal to drive an acoustic transducer in col. 2, line 66 to col. 3, line 8) that is proportional to the determined

distance (the step of determining is used to set a volume of a signal driving a speaker based on the determined distance, col. 8, lines 18-21; col. 8, lines 60-63).

Myllyla fails to teach the correlating a control signal received directly by the microphones and a control signal reflected from a user of the telephone and then received by them microphone for determining a distance between the telephone and the user. However, Maxwell teaches the correlating a control signal received directly by the microphones (microphone 30, step 110, Fig. 3, receiving original sound as emitted, col. 4, lines 10-19) and a control signal reflected from a user of the telephone (step 125, receive reflections of sound, col. 4, lines 29-48) and then received by the microphone (30) for determining a distance between the computer and the user (to locating the user of a computer system and adjusting the sound from speaker, abstract). Maxwell teaches the determining of the user's location distance, such as, with respect to a user's computer device, by utilizing the software 24 (col. 2, lines 9-32, which can be used for a mobile telephone) by comparing the original emitted sound with the reflected sound signal, with efficiency (reducing complexity in col. 1, lines 28 -50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, and to include Maxwell's determining of user's location distance by comparing the original emitted sound with the reflected sound signal with efficiency, such that the mobile telephone could determine user's location with less complexity.

3. Claims 14, 20, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myllyla in view of Maxwell, and further in view of Hatamura et al. (US 6,547,620 B1).

Regarding **claim 14,** Myllyla teaches the proximity detector of claim 13. Myllyla fails to teach the attenuation determining means for determining the attenuation of a control signal received directly by the microphone from the loudspeaker. However, Maxwell teaches the attenuation determining means for determining the attenuation of a control signal received directly by the microphones (step 110, receiving original sound as emitted, col. 4, lines 10-19; the comparing the amplitude of original sound with the amplitude of a reflected sound, col. 5, lines 9-26). Myllyla and Maxwell fails to teach the varying of the signal level of the audible signal reproduced by the loudspeaker inversely proportional to the attenuation. However, Hatamura teaches the means for varying the signal level of an audible signal reproduced by the loudspeaker inversely proportional to the attenuation (increasing speaker volume when the detected sound level is decreasing when the telephone 101 is move away from user's face in col. 5, lines 18-45, Fig. 4-6, step 108-109; the returning of the speaker volume from the increased level to the previous level when telephone is moving back to previous position adjacent to user's face, col. 5, line 61 to col. 6, line 18). Hatamura teaches a telephone apparatus has improve technique for automatically adjusting the speaker output level to avoid user's awkward situation during conversation to partner when the telephone is moved away from user's face (col. 2, lines 1-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, Maxwell above, and to further include Hatamura's increasing speaker volume when the detected sound level is decreasing, above, such that the telephone user could avoid awkward situation during conversation to a called party, due to the telephone is moved away from user's face.

Regarding **claim 20**, Myllyla teaches a proximity detector (abstract, Fig. 1-2) for use in a mobile phone (mp in Fig. 2, abstract) having at least a microphone (2, Fig. 1) and a loudspeaker (1, Fig. 1) operatively connected to signal processing means (3, Fig. 1), the proximity detector (proximity detecting system, Fig. 1, col. 3, line 57 to col. 4, line 9) comprising data processing (3, Fig. 1, the processing of altered measurement signal due to user's head, the 8 KHz, 40 KHz sampling, adaptive filtering LMS, impulse response estimation in col. 4, lines 27-62, Fig. 3; decimator 16, anticomb filtering 18, scaling 24A-24B, difference 26 in Fig. 4-5) and control means including means for controlling the signal processing means (col. 3, line 67 to col. 4, line 4, a signal processing unit 3 providing the control means including to generate the measurement signal A and to receive the response B fed to the processing 3, for calculating the proximity detection result) for activating the loudspeaker to reproduce an acoustic control signal (generating measurement signal to drive an acoustic transducer in col. 2, line 66 to col. 3, line 8). Myllyla fails to teach the attenuation determining means for determining the attenuation of a control signal received directly by the microphones. However, Maxwell teaches the attenuation determining means for determining the attenuation of a control signal received directly by the microphones (step 110, receiving original sound as emitted, col. 4, lines 10-19; the comparing the amplitude of original sound with the amplitude of a reflected sound, col. 5, lines 9-26).

Myllyla and Maxwell fails to teach the inversely proportional to the attenuation. However, Hatamura teaches the means for varying the signal level of an audible signal reproduced by the loudspeaker inversely proportional to the attenuation (increasing speaker volume when the detected sound level is decreasing when the telephone 101 is move away from user's face

in col. 5, lines 18-45, Fig. 4-6, step 108-109; the returning of the speaker volume from the increased level to the previous level when telephone is moving back to previous position adjacent to user's face, col. 5, line 61 to col. 6, line 18). Hatamura teaches a telephone apparatus has improve technique for automatically adjusting the speaker output level to avoid user's awkward situation during conversation to partner when the telephone is moved away from user's face (col. 2, lines 1-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, Maxwell above, and to further include Hatamura's increasing speaker volume when the detected sound level is decreasing, above, such that the telephone user could avoid awkward situation during conversation to a called party, due to the telephone is moved away from user's face.

Regarding **claim 23,** Myllyla teaches the proximity detector of claim 13. Myllyla fails to teach the attenuation determining means for determining the attenuation of a control signal received directly by the microphone from the loudspeaker. However, Maxwell teaches the attenuation determining means for determining the attenuation of a control signal received directly by the microphones (step 110, receiving original sound as emitted, col. 4, lines 10-19; the comparing the amplitude of original sound with the amplitude of a reflected sound, col. 5, lines 9-26). Myllyla and Maxwell fails to teach the varying of the signal level of the audible signal reproduced by the loudspeaker inversely proportional to the attenuation. However, Hatamura teaches the means for varying the signal level of an audible signal reproduced by the loudspeaker inversely proportional to the attenuation (increasing speaker volume when the detected sound level is decreasing when the telephone 101 is move away from user's face in col. 5, lines 18-45, Fig. 4-6, step 108-109; the returning of the speaker

volume from the increased level to the previous level when telephone is moving back to previous position adjacent to user's face, col. 5, line 61 to col. 6, line 18). Hatamura teaches a telephone apparatus has improve technique for automatically adjusting the speaker output level to avoid user's awkward situation during conversation to partner when the telephone is moved away from user's face (col. 2, lines 1-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, Maxwell above, and to further include Hatamura's increasing speaker volume when the detected sound level is decreasing, above, such that the telephone user could avoid awkward situation during conversation to a called party, due to the telephone is moved away from user's face.

Regarding **claim 24,** Myllyla teaches a method for sound-based proximity detection in a mobile telephone (abstract, Fig. 1-2, mp in Fig. 2, abstract) having at least a microphone (2, Fig. 1) and a loudspeaker (1, Fig. 1) operatively connected to signal processing means (3, Fig. 1), the method comprising the steps of controlling the signal-processing means to activate the loudspeaker to reproduce an acoustic control signal (col. 2, line 66 to col. 3, line 8). Myllyla fails to teach the determining the attenuation of a control signal transmitted directly to the microphone from the loudspeaker. However, Maxwell teaches the attenuation determining means for determining the attenuation of a control signal received directly by the microphones (step 110, receiving original sound as emitted, col. 4, lines 10-19; the comparing the amplitude of original sound with the amplitude of a reflected sound, col. 5, lines 9-26). Myllyla and Maxwell fails to teach the varying of the signal level of the audible signal reproduced by the loudspeaker inversely proportional to the attenuation. However, Hatamura teaches the means for varying the signal level of an audible signal reproduced by

the loudspeaker inversely proportional to the attenuation (increasing speaker volume when the detected sound level is decreasing when the telephone 101 is move away from user's face in col. 5, lines 18-45, Fig. 4-6, step 108-109; the returning of the speaker volume from the increased level to the previous level when telephone is moving back to previous position adjacent to user's face, col. 5, line 61 to col. 6, line 18). Hatamura teaches a telephone apparatus has improve technique for automatically adjusting the speaker output level to avoid user's awkward situation during conversation to partner when the telephone is moved away from user's face (col. 2, lines 1-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Myllyla, Maxwell above, and to further include Hatamura's increasing speaker volume when the detected sound level is decreasing, above, such that the telephone user could avoid awkward situation during conversation to a called party, due to the telephone is moved away from user's face.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. US 4,490,584, December 1984, Lucey teaches the remote microphone 82 and a local loudspeaker 78 to broadcast signals, wherein the loudspeaker audio level is controlled to vary with the level of the received microphone signal (abstract, Fig. 1).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Edward Urban, can be reached at (703)-305-4385.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C.C.

April 22, 2004.

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600